

Applicant: Peter A. Warren  
For: FLEXURE AND PRECISION CLAMP

1           1.       A flexure comprising:  
2                   a plurality of plies of composite material consolidated everywhere  
3       except at at least one predefined region where preselected adjacent plies are purposefully  
4       delaminated so they can move relative to each other when the flexure is bent.

1           2.       The flexure of claim 1 in which the plies are grouped together in a number  
2       of consolidated layers except at the predefined region where there is no consolidation  
3       between adjacent layers.

1           3.       The flexure of claim 1 in which there are a number of consolidated layers  
2       each including a plurality of plies except at the predefined region where there are less layers  
3       and no consolidation between adjacent layers.

1           4.       The flexure of claim 1 in which the flexure is substantially longer than it is  
2       thick.

1           5.       The flexure of claim 4 in which the flexure is substantially longer than it is  
2       wide.

1           6.       The flexure of claim 5 in which the flexure is substantially longer than it is  
2       thick and substantially longer than it is wide.

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1           7.       The flexure of claim 1 in which the plies include axial carbon fibers  
2   embedded in a resin matrix.

1           8.       A method of manufacturing a flexure, the method comprising:  
2                   forming a plurality of composite plies into a number of layers;  
3                   placing between two adjacent layers a non-impregnatable material at  
4   a predefined region therebetween which interrupts another layer disposed between the two  
5   adjacent layers;  
6                   applying heat and pressure to consolidate all the layers except at the  
7   predefined region; and  
8                   removing the non-impregnatable material.

1           9.       The method of claim 8 in which the layers include plies of axial carbon  
2   fibers embedded in a resin matrix.

1           10.      The method of claim 8 in which each layer is at least partially consolidated  
2   except the interrupted layer which is a prepreg.

1           11.      The method of claim 8 in which the non-impregnatable material is a number  
2   of metallic shims.

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- 1            12.    A flexure comprising:
- 2                            a number of plies of composite material consolidated everywhere
- 3    except at at least one predefined region where preselected adjacent plies are purposefully
- 4    delaminated so they can move relative to each other when the flexure is bent, the plies
- 5    group together in a number of consolidated layers except at the predefined region where
- 6    there is no consolidation between adjacent layers.

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1           13.     A flexure comprising:  
2                     a plurality of plies of composite material consolidated everywhere  
3     except at at least one predefined region where preselected adjacent plies are purposely  
4     delaminated so that they can move relative to each other when the flexure is bent, the  
5     flexure including a number of consolidated layers each including a plurality of plies except  
6     at the predefined region where there are less layers and no consolidation between adjacent  
7     layers.

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1           14.    A latch assembly comprising:  
2                   a tang; and  
3                   a clamp which receives the tang, the clamp including:  
4                   a base; and  
5                   at least two flexures extending from the base spaced from  
6                   each other defining opposing jaws which, when flexed away  
7                   from each other, accept the tang therebetween and which  
8                   when released secure the tang in the clamp between the jaws.

1           15.    The latch assembly of claim 14 in which each flexure includes a plurality of  
2                   plies of composite material consolidated everywhere except at at least one predefined region  
3                   where preselected adjacent plies are purposely delaminated so that they can move relative to  
4                   each other when the flexure is bent.

1           16.    The latch assembly of claim 14 in which each clamp jaw includes a number  
2                   of flexures.

1           17.    The latch assembly of claim 16 in which each clamp jaw includes an end cap  
2                   secured to the terminal ends of the plurality of flexures.

1           18.    The latch assembly of claim 16 in which each clamp jaw includes at least  
2                   two spaced flexures.

1           19.    The latch assembly of claim 18 in which each clamp jaw includes two sets

2 of spaced flexures.

1 20. The latch assembly of claim 17 in which each clamp jaw includes a bearing  
2 attached thereto.

1 21. The latch assembly of claim 14 further including a spreader assembly which  
2 urges the jaws apart.

1 22. The latch assembly of claim 14 in which the tang includes at least two  
2 spaced apart flexures.

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23. A composite flexure.

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